

west virginia department of environmental protection

Office of Oil and Gas 601 57th Street SE Charleston, WV 25304 (304) 926-0450 (304) 926-0452 fax Earl Ray Tomblin, Governor Randy C. Huffman, Cabinet Secretary www.dep.wv.gov

November 18, 2013

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101670, issued to TRANS ENERGY, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin

hief

Operator's Well No: SIVERT 2H

Farm Name: SIVERT, GEORGE M. & ANTOINE

API Well Number: 47-5101670

Permit Type: Horizontal 6A Well

Date Issued: 11/18/2013

Promoting a healthy environment.

API Number: 51-01670

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. <u>Failure to adhere to the specified permit</u> conditions may result in enforcement action.

CONDITIONS

- 1. Access to the permitted well location shall follow the route shown on the attached map, thereby avoiding traffic associated with Cameron High School.
- 2. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE regarding this proposed activity.
- 3. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
- 4. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
- 5. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
- 6. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
- 7. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
- 8. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
- 9. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

WW - 6B (3/13)

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS WELL WORK PERMIT APPLICATION

		WELL W	OKK FI	KWIII AFFLICA	51	01	278
1) Well Operator:	Trans En	ergy Inc.		494481575	Marshall	Cameron	Cameron
•	7 			Operator ID	County	District	Quadrangle
2) Operator's Well	Number:	Sivert 2H		,	Well Pad Nan	ne: Sivert	
3 Elevation, curren	t ground:	1438'	El	evation, proposed	post-construc	etion:	1418 (KC
4) Well Type: (a) C	Gas	Oil		Undergrour	nd Storage	1	_
		allow rizontal	√ ₂	KC Deep _			
5) Existing Pad? Ye	es or No:	No					
6) Proposed Target Marcellus Shale - 7200'), Depth(s), A	Anticipat	ed Thicknesses ar	nd Associated	Pressure(s):	
7) Proposed Total V	ertical Dept	h: 7200'					
8) Formation at Tot	al Vertical D	epth: ма	rcellus Shale				
9) Proposed Total N	Measured Dep	oth: 12,	200				
10) Approximate Fr	esh Water S	trata Depths:	W	ater Wells drilled in the Co	ounty, information pr	ovided by Health Dep	ot.
11) Method to Dete	rmine Fresh	Water Depth	: 50	0' 150'			
12) Approximate Sa	altwater Dept	ths: 1525	5'	,			
13) Approximate Co	oal Seam De	pths: 90	0'				
14) Approximate D	epth to Possi	ble Void (co	al mine,	karst, other):	McElroy		
15) Does proposed adjacent to an ac				lirectly overlying nd depth of mine:	Vaa		
16) Describe propos	sed well wor	k: Drill and	Complete h	orizontal well in the Marce	ellus Shale. Lateral t	o be approximately 5	i,000 in length.
If Mine void is encounter, p	please see attached	letter					
17) Describe fractur				d to stimulate the Marcellus	: Shale.		
18) Total area to be	disturbed, in	cluding road	s, stockr	oile area, pits, etc.	(acres):	21.68 acres	
19) Area to be distu	rbed for well	l pad only, le	ss access	s road (acres):	3.51 acres	21/	
				1111 1 0 0010		1.3600	Page 1 of 3

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WW - 6B (3/13)

20)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	24	new	J-55	64	80	80	CTS
Fresh Water	20	new	J-55	94	300	300	CTS
Coal	13 3/8	new	J-55	54.5	850	850	CTS
Intermediate	9 5/8	new	J-55	40	3000	3000	CTS
Production	5 1/2	new	P-110	20		12200	3,000
Tubing							
Liners							

14/13/13

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20	26	0.438	1530	Type 1	13 cu ft/sk
Fresh Water	13 3/8	17 1/2	0.38	2730	Type 1	1.25 cu ft/sk
Coal						
Intermediate	9 5/8	12 1/2	.352	3520	Type 1	1.26 cu ft/sk
Production	5 1/2	8 3/4	.361	12630	Pos H Class H	1.18 cu ft/sk
Tubing						
Liners						

PACKERS

Kind:		
Sizes:		
Depths Set:		*

AECEIVED
Office of Oil and Gas

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Environmental Protection



June 28, 2013

Ms. Laura Adkins West Virginia DEP 601 57th Street Charleston, WV 25304

Re: Void Encounter

Sivert 1H and Sivert 2H

Dear Laura,

If a Mine Void would be encountered we will run casing no deeper than 50' beyond the void and set a basket as the ceiling and at the bottom and grout/cement, and we will notify the inspector immediately.

We are also adding additional language as per the state; that we will to go at least 30' beyond. (§22-6-20 "When a well is drilled through the horizon of a coal bed from which the coal has been removed, the hole shall be drilled at least thirty feet below the coal bed...")

Once you have reviewed and would have any questions regarding this permit please feel free contact me at 304-684-7053 ext. 26 or Leslie Gearhart at ext. 32

As always thank you for your help in these matters.

Sincerely yours,

Trans Energy Incorporated

Debra A. Martin Land Administrator

DM/dm

Received

JUL 10 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

Describe centralizer placement for each casing string.
Fresh water string - 1 centralizer every 160'
Intermediate string - 1 centralizer every 100' from 3300' to 900'
Production string - 1 centralizer every 80' from TD to above ROP (7000')
Describe all cement additives associated with each cement type.
Standard Type 1 cement - retarder and fluid loss (surface and interm)
Type 1 + 2% CaC12 + Y4# Flake - Surface Cement mixed @ 15.6 ppg CaC12, Flake (cellohane flak
Type 1 + 1% CaC12 + Y4# Flake - Intermediate Cement mixed @ 15.6 ppg
Class H in lateral - retarder and fluid loss and dree water additive
Proposed borehole conditioning procedures.
Before cement casing mud will be thinned and all gas will be circulated out of the mid before cement

*Note: Attach additional sheets as needed.

Received

JUL 10 2013

WELLBORE SCHEMATIC

Well Name:

Sivert 2H

County:

Marshall

Latitude:

39.854202

Longitude:

-80.56628

TVD:

7,200 ft.

TD:

12,200 ft.

Type Casing	<u>Size</u>	<u>Footage</u>
Conductor	20"	80'
Fresh Water	13-3/8"	300'
Intermediate	9-5/8	3,000'
Production	5-1/2"	12,000'

Wy Propt of Environmental Protection

51-01670

	 .	Page	of
API Number 47 -	51		01670
Operator's V	Well N	No. Sivert	2H

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Trans Energy Inc. OP Code 494481575
Watershed (HUC 10) North Fork of Grave Creek Quadrangle Cameron
Elevation 1438' County Marshall District Cameron
Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes x No
Will closed loop system be used? yes
Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Freshwater mud until reaching Marcellus then synthetic
-If oil based, what type? Synthetic, petroleum, etc. Synthetic
Additives to be used in drilling medium? See attached
Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All cuttings will be hauled to approved landfill
-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) No Pit -Landfill or offsite name/permit number? Short Creek Landfill SWF - 1034
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action. I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.
Company Official Signature Leslie Gearhart Wy Dopt of Oil and Gas
William -
Subscribed and sworn before me this 21th day of Annual State of West Virginia Notary Public Debra A Martin Trans Energy Incorporated 210 2nd Street St. Mary's, WV 26170 My Commission expires 11/29/2020

Form WW-9

	Operator's Well No		
Trans Energy Inc.			
Proposed Revegetation Treatment: Acres D	Disturbed Total 21.68 - Pad 3.51	Prevegetation pl	H /
Lime Tons/acre	or to correct to pH 65		
Fertilizer (10-20-20 or equivalent)	600lbs/acre (500 lbs n	ninimum)	
Mulch 90 Bales	Tons/acre		
	Seed Mixtures		
Area I		Ar	ea II
Seed Type lbs/acre		Seed Type	lbs/acre
Meadow Mix 100	Meado	w Mix	100
Oats or Rye 50	Oats o	r Rye	50
Drawing(s) of road, location,pit and propose	ed area for land application.		
Photocopied section of involved 7.5' topogra	aphic sheet.		
Photocopied section of involved 7.5' topogra			
	andles ist		
Plan Approved by:	andles ist		
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west virginia department of environmental protection



Water Management Plan: Primary Water Sources



WMP-01378 API/ID Number: 047-051-01670 Operator: Trans Energy Inc.
Sivert 2H

Important:

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP's assessment is based on the following considerations:

- •Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- •Identification of sensitive aquatic life (endangered species, mussels, etc.);
- •Quantification of known existing demands on the water supply (Large Quantity Users);
- •Minimum flows required by the Army Corps of Engineers; and
- Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

DEP is aware that some intake points will be used for mutiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interepreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator's responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at DEP.water.use@wv.gov.

APPROVED AUG 2 3 2013

Source Summary

WMP-01378 API Number: 047-051-01670 Operator: Trans Energy Inc. Sivert 2H

Stream/River

Source

Ohio River @ J&R Excavating

Marshall

Owner:

J&R Excavating

Start Date

End Date

Total Volume (gal)

Max. daily purchase (gal)

Intake Latitude: Intake Longitude:

11/1/2013

11/1/2014

6,300,000

39.998509

-80.737336

✓ Regulated Stream?

Ohio River Min. Flow

Ref. Gauge ID:

9999999

Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm):

2,940

Min. Gauge Reading (cfs):

6,468.00

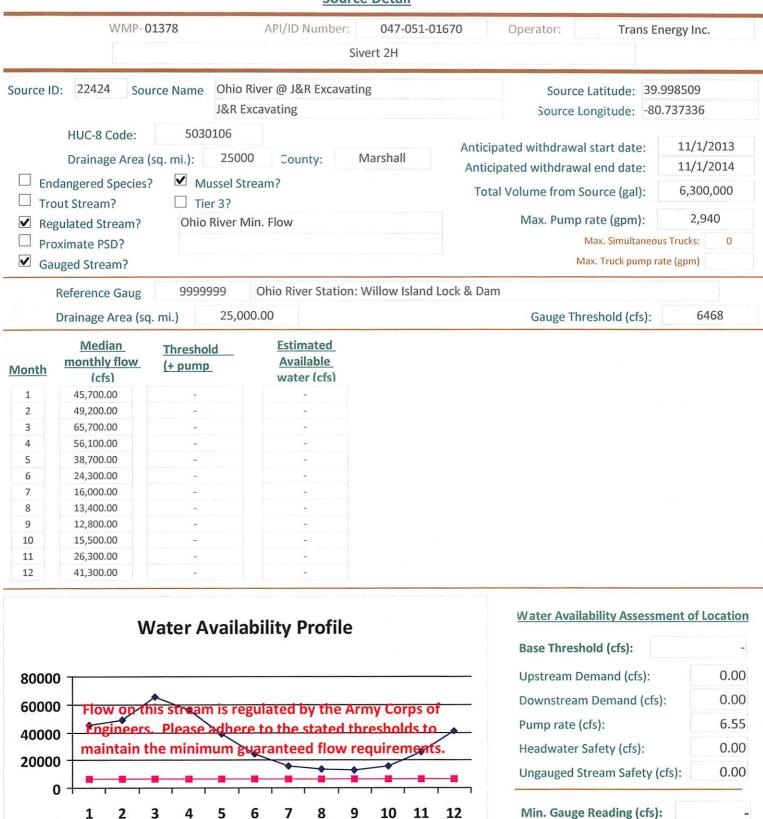
Min. Passby (cfs)

DEP Comments:

Refer to the specified station on the National Weather Service's Ohio River forecast

website: http://www.erh.noaa.gov/ohrfc//flows.shtml

Source Detail



Median Monthly Flow — Threshold

Passby at Location (cfs):

[&]quot;Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

west virginia department of environmental protection



Water Management Plan: Secondary Water Sources



WMP-01378	API/ID Number	047-051-01670	Operator:	Trans Energy Inc.
	S	ivert 2H		

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- •For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Source ID:	22425	Source Name	Christopher Fa	ırm Pond		Source start da	te: 11/1/201
						Source end da	
		Source Lat:	39.88061	Source Long:	-80.572528	County	Marshall
		Max. Daily Pu	rchase (gal)		Total Volu	me from Source (gal)	6,300,000
	DEP Co	omments:					

WMP-01378 API/ID Number: 047-051-01670 Operator: Trans Energy Inc.

Sivert 2H

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- •For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- •For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Multi-site impoundment

Source ID: 22426 Source Name Stout Centralized Freshwater Impoundment Source start date: 11/1/2013

Source end date: 11/1/2014

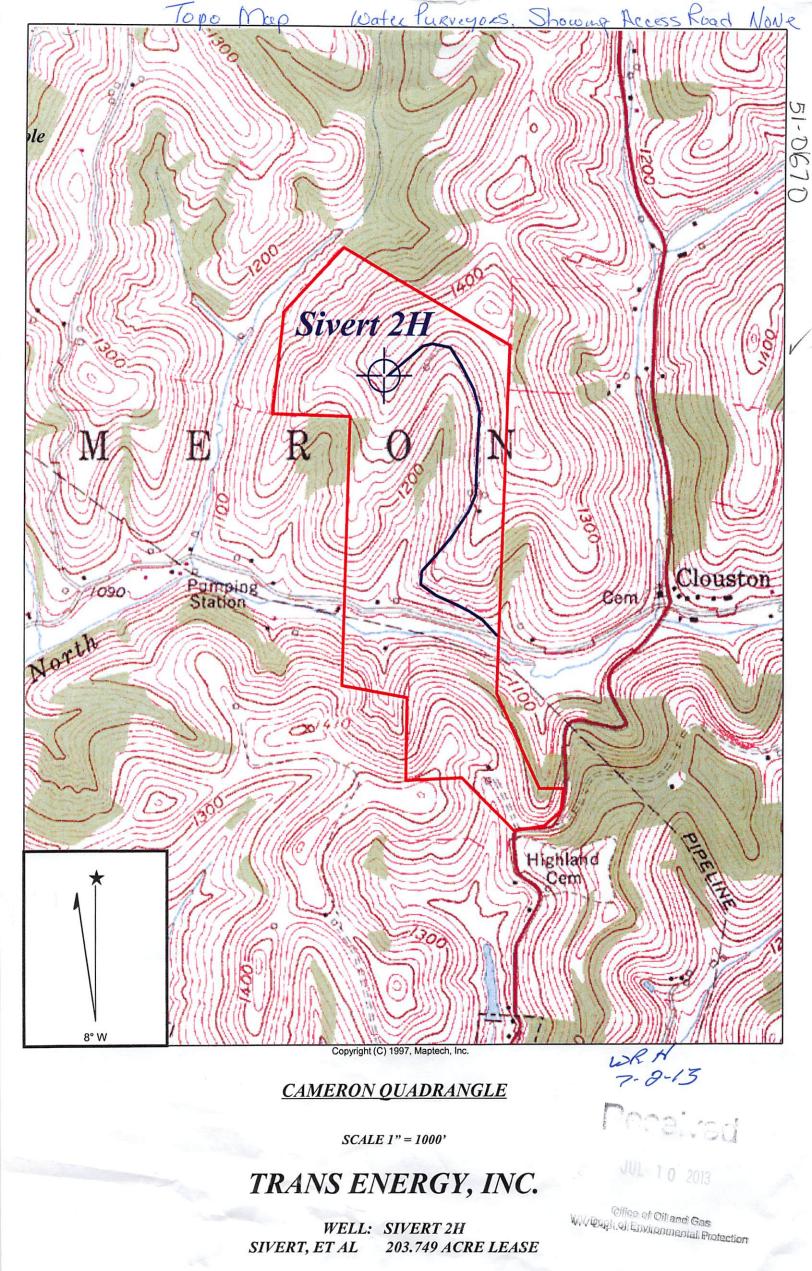
Reference: WMP-971

Source Lat: 39.866624 Source Long: -80.543362 County Marshall

Max. Daily Purchase (gal) Total Volume from Source (gal): 6,300,000

DEP Comments:

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.



CAMERON DISTRICT MARSHALL COUNTY WEST VIRGINIA

